**Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Day/Period: \_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_**

**Chapter 15: *Evolution***

*Multiple Choice: Circle the answer that best applies (3 Points each)*

1.What is the movement of genes in and out of a gene pool called?

* 1. Direct selection c. Genetic drift
  2. Gene flow d. Geographic isolation

2. Within a decade of the introduction of a new insecticide, nearly all of the descendants of the target pests were immune to the usual-sized dose. The most likely explanation for this immunity to the insecticide is that \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

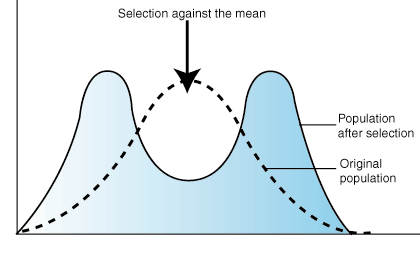
a. eating the insecticide caused the bugs to become resistant to it

b. eating the insecticide caused the bugs to become less resistant to it

c. it destroyed organisms that cause disease, thus allowing insects to live longer

d. the pests developed physiological adaptations to the insecticide

1. A pattern of evolution that results when two unrelated species begin to appear similar because of environmental conditions is :
   1. punctuated equilibrium c. convergent evolution
   2. divergent evolution d. gradualism
2. What does natural selection act on in a population?
   1. variations c. analogies
   2. homologies d. polyploidy
3. Which of the following is *not* a mechanism for evolution?
   1. genetic drift c. mutations
   2. natural selection d. genetic equilibrium
4. Both gradualism and punctuated equilibrium are theories that describe the rate of:
   1. artificial selection c. geographic isolation
   2. speciation d. reproductive isolation
5. Scientists can use the Hardy-Weinberg equation to help measure:
   1. the expected alleles belong to the offspring of two individuals
   2. the number of genes in the gene pool
   3. the expected growth of a population over time
   4. the amount of natural selection that is occurring within a population
6. Which of the statements regarding the forms of evidence best supports the theory of evolution?
   1. Shared features in embryos suggest that vertebrates evolved from a shared ancestor
   2. The fossil records shows how new species evolved from older forms through transitional fossils
   3. Organisms that are more closely related have closer similarities of biochemistry
   4. All of the above
7. \_\_\_\_\_\_\_\_\_\_\_ is a mechanism for speciation that occurs in a single generation and involves an organism more than 2 paired sets of chromosomes is:
   1. Adaptation c. Polyploidy
   2. Disruptive meoisis d. Reproductive isolation
8. Which of the statements about evolution is *incorrect*?
   1. Individuals evolve, populations do not
   2. Evolution is a heritable change in species over time
   3. There are several forms of evidence that support evolution
   4. Evolution is not a random process
9. Which pair of structures listed below is *not* considered to be homologous?
   1. Bird wing-bat wing c. Bird wing-butterfly wing
   2. Bird wing- human forelimb d. Bird wing-Alligator forelimb



1. What type of selection does this image best represent?
   1. Stabilizing selection c. Disruptive selection
   2. Directional selection d. Natural
2. Upon close examination of the skeleton of an adult python, a pelvic girdle and leg bones can be observed. These features are an example of \_\_\_\_\_\_\_\_.
   1. Homologous structures c. Vestigial structures
   2. Analogous structures d. Comparative anatomy
3. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ occurs at or above the species level and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is changes in allele frequencies within a population.
   1. Microevolution, Macroevolution c. Macroevolution, Speciation
   2. Macroevolution, Microevolution d. Microevolution, Speciation
4. The theory of continental drift hypothesizes that Africa and South America slowly drifted apart after being a single landmass. The monkeys on the two continents, although similar, show numerous genetic differences. Which factor is probably the most important in maintaining these differences?
   1. Reproductive isolation c. Adaptive radiation
   2. Geographic isolation d. Genetic drift
5. Natural Selection can best be defined as the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
   1. Survival of the biggest and strongest organisms in the populations
   2. Elimination of the least efficient organisms by the most efficient organisms
   3. Survival and reproduction of the organisms that occupy the largest area
   4. Survival and reproduction of the organisms that are genetically best adapted to the environment
6. Which of the following conditions can cause a species to evolve?
   1. Food shortage c. Competition for mates
   2. Change in habitat d. All of the above
7. In their environment, when competing for bugs as a food source, it became advantageous for woodpeckers to have longer sized beaks. Over many generations, the longer beak was selected for. What type of selection has occurred?
   1. Stabilizing c. Disruptive
   2. Natural d. Directional

19. Adaptive radiation is when:

a. An extreme variation of a trait is selected for

b. A species evolves as the result of radioactivity

c. Two species, which are not closely related, adapt similar characteristics

d. An ancestor species evolves into an array of species to fit a number of

diverse habitats

20.Darwin described an idea that all living things are related and share common ancestors. What is this idea called?

a. Survival of the Fittest c. Decent with modification

b. Artificial Selection d. Natural Selection

21. Which of the following is an example of reproductive isolation that results in speciation.

a. One population of tree frogs mates in the summer and another mates in the fall

b. A wild river divides two populations of tree frogs

c. Tree frogs of a single population mate

d. Tree frogs only mates with the same mate throughout its lifetime

22. The colors and body shape of a harmless syrphid fly resemble the color and body shape of a yellow jack wasp. What type of adaptation is this.

a. Physiological c. Camouflage

b. Mimicry d. Behavioral

23. Charles Darwin wrote a book called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_that details his theory of Evolution by Natural Selection.

a. *Origin of Organisms* c. *On the Origin of Selection*

b. *On the Origin of Species* d. *Origin of Diversity*

*Short Response: Answer the following questions using a clear explanation*

24. How did artificial selection help Charles Darwin identify the process of Natural Selection? *(6 points)*

25. Provide an example of a physiological adaptation and explain why it is a form of evidence that supports the theory of evolution? *(5 points)*

*26. Long Response: (20 points total, 5 points each)*

In class, we watched a short movie clip called “*How Evolution Works*” in addition to completing a lab called “Dining in the Galapagos” which modeled how the process of Natural Selection works.

List the four components of Natural Selection and provide an example of each:

1.

2.

3.

4.